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ZW.

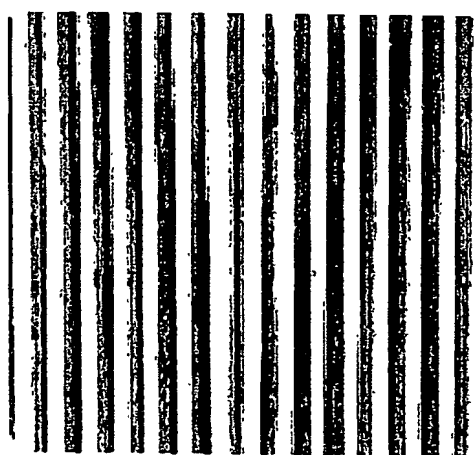
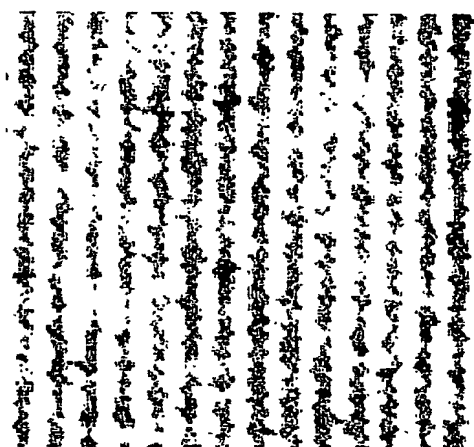
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(54) Title: HOLOGRAPHIC DIFFRACTION GRATING, PROCESS FOR ITS PREPARATION AND ELECTRO-OPTICAL DE-
VICES INCLUDING THE SAME



(57) Abstract: Composite polymer/liquid crystal material having a holographic grating structure formed by an alternating ordered succession of crystal layers. The nematic liquid crystal monophase region which is substantially free from furthermore, the holo-
graphic grating structure is comprises the steps of: -heating a mixture of a photoinitiator, a monomer Composite polymer/liquid
crystal material having a holographic grating structure of polymer layers and nematic liquid layers comprise an ordered nematic li-
quid crystal droplets. obtained by a process which above the nematic/isotropic phase phase separation -illumination of -tion; -slow
cooling of transition and a nematic liquid crystal and the temperature, in order to prevent isotropic/nematic phase transition of the
liquid crystal; mixture at a rate lower than 0,3°C/mixture, to achieve a mixture with an interference pattern to induce polymerise the
complete orientation of the liquid crystal director, and below the isotropic/nematic transition temperature.

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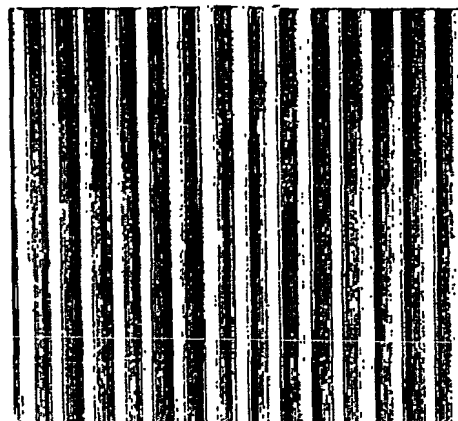
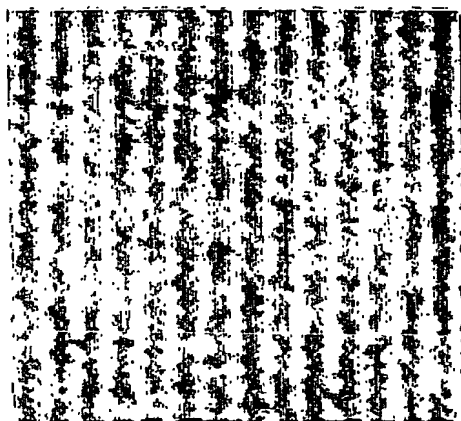
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(54) Title: **HOLOGRAPHIC DIFFRACTION GRATING, PROCESS FOR ITS PREPARATION AND ELECTRO-OPTICAL DEVICES INCLUDING THE SAME**



(57) Abstract: Composite polymer/liquid crystal material having a holographic grating structure formed by an alternating ordered succession of polymer layers and nematic liquid crystal layers. The nematic liquid crystal layers comprise an ordered nematic monophase region which is substantially free from liquid crystal droplets. Furthermore, the holographic grating structure is obtained by a process which comprises the steps of: -heating a mixture of a photoinitiator, a monomer and a nematic liquid crystal above the nematic/isotropic phase transition temperature, in order to prevent phase separation and isotropic/nematic phase transition of the liquid crystal; - illumination of the mixture with an interference pattern to induce polymerisation; - slow cooling of the mixture at a rate lower than 0,3°C/mixture, to achieve a complete orientation of the liquid crystal director, and below the isotropic/nematic transition temperature.

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